The Signaling Role of Early Career Job Loss
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Introduction
I examine the extent to which ability signaling explains long-term wage losses suffered by
young workers who experience layoffs. Young workers are of particular interest because
employers have limited information about their ability, so signaling theoretically plays a
larger role in determining wages. In addition, young workers are particularly exposed to experience
wage losses due to industry-specific human capital or separation from high-quality
job matches, which may explain long-term wage decreases among older workers.
I consider a setting in which layoff signals vary based on the amount of public information
available about a laid off worker relative to the amount of private information held by the
employer’s prior employer, under the assumption that downsizing employers prefer to lay off
their lowest productivity workers first, though some are unable to do so. This yields layoff
signals that act as a form of dynamic statistical discrimination. Workers who are incorrectly
assigned a low-ability signal due to being laid off suffer a negative initial signal effect that is
decreasings in pre-layoff experience, followed by a gradual recovery that is proportional to
both the size of the signal and the return to the worker’s ability level in the absence of a
layoff. Figure 1 illustrates the effect of a layoff signal at experience level \( x_0 \) after
accounting for public information prior to the layoff, for two “types” of workers, one with a
positive relative ability (type-\( P \)) and another with a negative relative ability (type-\( N \)).

Data
I use data from the National Longitudinal Survey of Youth (NLSY’97) to test the implications
of the layoff signaling framework. The NLSY’97 is a survey of about 9,000 individuals
descriptive of the labor market prior to 2008, though a few years of data are missing. It includes
specific characteristics and information regarding the specific nature of job
changes. My analysis sample consists of approximately 4,000 workers who made their first
long-term transition into the labor market prior to 2008. Finally, as the primary analysis is
based on the way in which employers learn about workers’ relative ability, as opposed to
their overall ability, I follow Farber and Gibbons (1996) and proxy for relative ability using
the residual from a regression of AFQT scores on a vector of observable characteristics and
each worker’s entry period log wage, which is included to account for any characteristics
related to a worker’s productivity that are observed by employers but are not available in the data.

Main Empirical Approach
Results from the split sample event-study analysis provide evidence for divergent recovery
paths by residual but not actual AFQT score. While divergent recovery paths provide
encouraging initial support for statistical discrimination based on layoff signals, other
possible theoretical explanations may also lead to this finding.
In order to empirically identify layoff signaling, I develop an empirical approach based on
Farber and Gibbons (1996) and Altonji and Pierotti (2001) that exploits the dynamic
relationship between pre-layoff public information and post-layoff employer learning. As a
baseline, the empirical model includes controls for each worker’s residual AFQT score
(\( \text{AFQT}_i \)), the proportion of residual AFQT score and experience, as well as variables to
control for the general effect of a layoff. In this baseline model, the return to a worker’s residual
AFQT score is predicted to be zero when the worker first enters the labor market but to increase with experience as employers learn the worker’s true productivity. To study the effects of layoff signaling, I include the following variables:
1. \( \text{layoff}_i \times \text{AFQT}_i \) to account for the initial disproportionate signal effect by worker’s relative ability
2. \( \text{layoff}_i \times \text{AFQT}_i \times \text{Post Exp}_i \) to account for faster increases in the return to ability for laid off workers than for non-laid off workers
3. \( \text{layoff}_i \times \text{AFQT}_i \times \text{Pre Exp}_i \) to account for the effect of pre-layoff information on the layoff signal effect
4. \( \text{layoff}_i \times \text{AFQT}_i \times \text{Post Exp}_i \times \text{Pre Exp}_i \) to account for the effect of pre-layoff information on the rate of change in the return to ability over post-layoff experience
Additionally, the general interaction of residual AFQT score and experience is held constant at the pre-layoff experience levels for laid off workers to control for the general effect of the public information available prior to the layoff. Estimates from models based on the above are reported in Table 1.

Conceptual Implications
1. The initial signal effect disproportionately affects workers with positive relative ability.
2. Following a layoff signal, the wage return to ability for laid off workers increases at a
   faster rate with experience than for their non-laid off counterparts. 
3. The initial signal effect is weakly decreasing in pre-layoff experience.
4. The faster increase in the wage return to ability for laid off workers, relative to non-
   laid off workers, is decreasing in pre-layoff experience.

Main Empirical Approach
Using data from the National Longitudinal Survey of Youth 1997, I show that young workers of all ability levels initially experience similar wage losses following layoffs, but high relative ability workers fully recover within five years while low relative ability workers experience persistent wage losses. Consistent with traditional learning models, relative, not actual ability affects wage trajectories. I find that low relative ability workers’ inability to negative observed wages signals explains a substantial proportion of long-term wage losses among young workers.

| Table 1: Layoff Signaling Model Log Wage Regression Estimates |
|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|
|                  | Layoff Log Wage | Layoff Log Wage | Layoff Log Wage |
|                  | AFQT*           | AFQT*           | AFQT*           | AFQT*           |
| AFQT*            | -0.001           | -0.002           | -0.001           | -0.001           |
| AFQT* × Total Exp/10 | 0.006           | 0.006           | 0.007           | 0.007           |
| Layoff × AFQT*   | 0.034           | 0.034           | 0.034           | 0.034           |
| Layoff × AFQT* × Post Exp | 0.002           | 0.003           | 0.004           | 0.004           |
| Layoff × AFQT* × Pre Exp | 0.002           | 0.003           | 0.004           | 0.004           |
| Layoff × AFQT* × Post × Pre Exp | -0.002           | -0.002           | -0.002           | -0.002           |

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Conclusion
Using data from the National Longitudinal Survey of Youth 1997, I show that young workers of all ability levels initially experience similar wage losses following layoffs, but high relative ability workers fully recover within five years while low relative ability workers experience persistent wage losses. Consistent with traditional learning models, relative, not actual ability affects wage trajectories. I find that low relative ability workers’ inability to negative observed wages signals explains a substantial proportion of long-term wage losses among young workers.